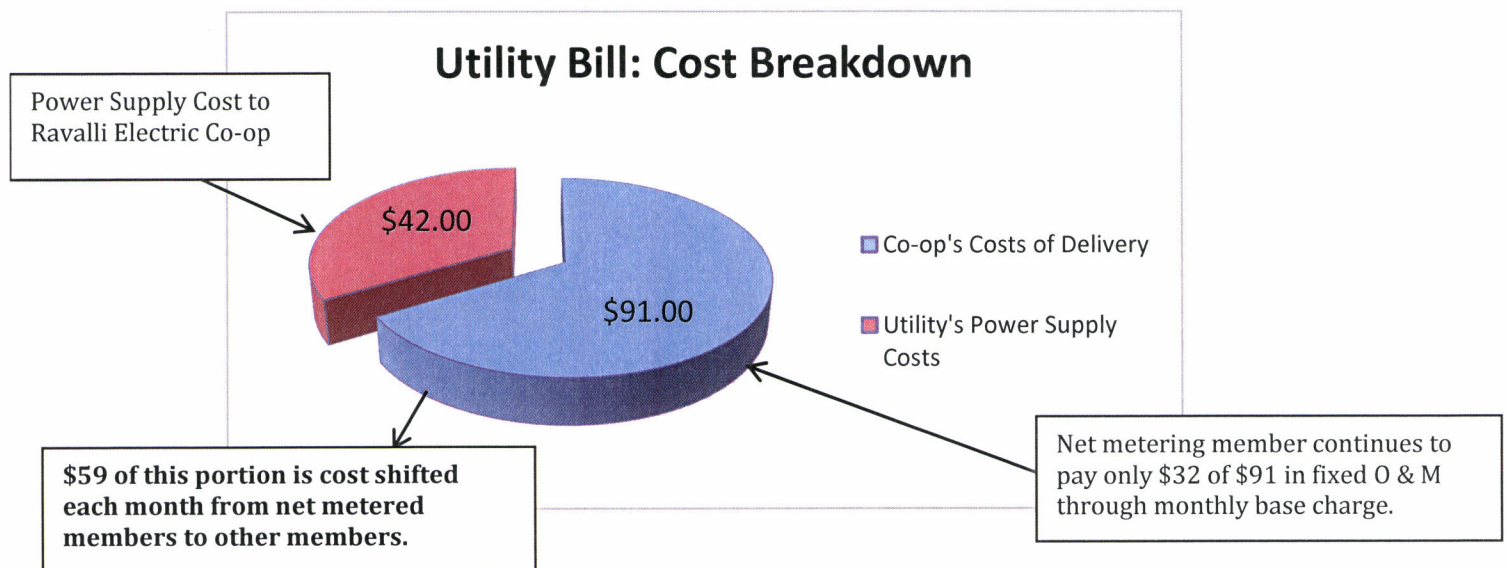


The Cost Shift of Net Metering for Ravalli Electric Co-op

- **Question:** *What is the cost shift from co-op members with net metering generators to other members?*
- Example for Net Metering Member of Low-Density Montana Electric Cooperative
 - [Low-Density Co-op has higher poles and wires cost due to higher cost of serving sparsely populated areas].
 - **\$133** = Typical Total Monthly Co-op Residential Customer Power Bill
 - **\$42** = Power Supply Portion
 - **\$91** = Total Cost for Operation, Maintenance of Power Delivery System
 - - **\$32** = Less Base Charge Paid by All Members (Including Net Metering Members)
 - **\$59** = Cost NOT recovered from the Net Metering Member
- **\$59 = TOTAL COST SHIFT TO OTHER CO-OP MEMBERS WITHOUT NET METERING ON JUST ONE METER UNDER THIS EXAMPLE^{1,2}**



¹Example based on 10 kW generator. Current Montana law allows for up to 50 kW generator.

²Net metering member's cost burden to system does not change with net metering. Portion is cost shifted to other members even though net metering member still fully dependent on co-op at highest usage times.

7.8 kW Solar System West of Victor, MT

3 Year Monitoring of kWh Billed vs. Sent to the Grid



Billed kWh per Year

Net- Meter Years	2010-11	2011-12	2012-13
Billed kWh	85,520	86,840	80,800



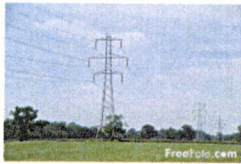
kWh Sent to the Grid

Net- Meter Years	2010-11	2011-12	2012-13
kWh to Grid	0	80	40

Net- Meter Balances	2010-11	2011-12	2012-13
Billed kWh	85,520	86,840	80,800
<u>kWh to Grid</u>	<u>0</u>	<u>80</u>	<u>40</u>
Balance by Co-op	85,520	86,760	80,760

2.04 kW Solar System South of Stevensville, MT

3 Year Monitoring of kWh Billed vs. Sent to the Grid



Billed kWh per Year

Net- Meter Years	2012-13	2013-14	2014-15
Billed kWh	11,933	13,841	18,823

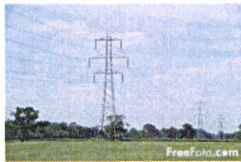


kWh Sent to the Grid

Net- Meter Years	2012-13	2013-14	2014-15
kWh to Grid	1,102	1,085	960

Net- Meter Balances 2012-13		2013-14	2014-15
Billed kWh	11,933	13,841	18,823
<u>kWh to Grid</u>	<u>1,102</u>	<u>1,085</u>	<u>960</u>
Balance by Co-op	10,891	12,756	17,863

3.2 kW Solar System East of Hamilton, MT
House was designed for solar was off Grid and came
on in 2009 so owner could go to Arizona in winter.
5 Year Monitoring of kWh Billed vs. Sent to the Grid



Billed kWh per Year

Net- Meter Years	2010-11	2011-12	2012-13	2013-14	2014-15
Billed kWh	2,468	2,714	3,855	3,881	2,701



kWh Sent to the Grid

Net- Meter Years	2010-11	2011-12	2012-13	2013-14	2014-15
kWh to Grid	2,297	2,356	2,369	3,121	2,139

Net- Meter Balances 2010-11		2011-12	2012-13	2013-14	2014-15
Billed kWh	2,468	2,714	3,855	3,881	2,701
kWh to Grid	2,297	2,356	2,369	3,121	2,139
Balance by Co-op	171	358	1,486	760	562

General

Please indicate what director district you live in.

(Circle one) 1 Florence 2 Stevensville 3 Victor 4 Corvallis 5 Hamilton 6 Grantsdale 7 Darby

Gender Female ☐ Male ☐

Age ☐ 19-29 ☐ 30-39 ☐ 40-49 ☐ 50-59 ☐ 60-69 ☐ 70+

Income ☐ Less than \$20,000 ☐ 20,000-39,000 ☐ 40,000-59,000 ☐ 60,000-79,000
☐ 80,000-99,000 ☐ 100,000 +

Education ☐ High School or Equivalent ☐ Vocational or Technical School ☐ Some College
☐ Bachelor's Degree ☐ Master's Degree ☐ Doctoral Degree
☐ Professional Degree (MD, JD, etc.)

Renewable Generation

Would you support Ravalli Electric Co-op offering Community Solar. ☐ Yes ☐ No

Would you participate in a Community Solar program? ☐ Yes ☐ No

If you were to participate, how would you prefer to finance the panels?

☐ NA ☐ Purchase the panel(s) ☐ Monthly installments on bill plus interest about 4%.

If you were to participate, how many panels would you be financing? (Circle total)

0 1 2 3 4 5 6 7 8 9 10 More

If the panel cost is too expensive, would you be interested in purchasing part of a panel with another member?

☐ Yes ☐ No

Do you Agree or Disagree with these statements:

Ravalli Electric Co-op should put more focus on expanding alternative renewables such as solar and spread the associated costs across the entire membership?

(Strongly Disagree) (Strongly Agree)
0 1 2 3 4 5 6 7 8 9 10

Keeping electric rates low is more important to me than offering a Community Solar project.

(Strongly Disagree) (Strongly Agree)
0 1 2 3 4 5 6 7 8 9 10

Ravalli Electric Co-op should invest in alternative renewables even if it means paying more.

(Strongly Disagree) (Strongly Agree)
0 1 2 3 4 5 6 7 8 9 10

Ravalli Electric Co-op should take a balanced approach to energy efficiency and renewables.

(Strongly Disagree) (Strongly Agree)
0 1 2 3 4 5 6 7 8 9 10

Ravalli Electric Co-op needs your input on Community Solar
An option for utilities and members to support another alternative renewable energy

If you have been paying attention to the news media, there is a lot of campaigning for the expanded use of alternative renewable energy in Montana. In fact in the coming legislative session this will be a very hot topic. Ravalli Electric Cooperative (REC) would like to take this opportunity to gauge your interest in the topic below.

To start, you may wonder why we use the term alternative renewable energy. Currently 96% of the generation REC buys on your behalf comes from renewable sources – mainly hydroelectric. We use the term “alternative renewable energy” because there are political and environmental organizations that would like to reduce our availability to the cheap hydroelectricity for more expensive types of renewable generation like wind and solar.

Now, a study conducted by the National Renewable Energy Laboratory (NREL) in 2008, found that only 22 – 27% of the residential roof tops in the United States were suitable for hosting on-site rooftop photovoltaic (solar) systems. The reasons sighted were the need to add structural support to existing roofs, shading from adjacent buildings, trees, mountains and ownership issues. The study offered some options for utilities and communities for expanding the access to renewables. One option is called “Community Solar”.

Community solar allows residential members who don't own their home, have shading issues or choose not to install a residential system because of financial reasons the opportunity to participate. Collectively, people could come together to fund a solar system located on ground or tract of property owned by a city, county or utility.

Community solar projects are designed to increase access to solar energy while reducing the up-front costs for participants. In addition, large tracts of land allow for optimal siting and increase economies of scale. Community solar projects can also be used to educate the public on solar energy.

If REC were to sponsor such a project, members could participate by purchasing solar panels. Purchases could be made upfront or as part of their monthly electric bill. The number of panels a member may purchase has not been determined at this time. In turn, members would receive a credit on their monthly electric bill for the portion of electricity generated by their panels.

An average residential account uses 1,124 kilo-watt-hours (kWh) a month. A typical panel generates approximately 23 kWh a month in the Bitterroot Valley and will generate electricity for about 25 years when properly maintained. Individual panels cost approximately \$1,100 - \$1,200 each.

REC would like to survey our membership to see if a community solar project is worth pursuing. Please take time to complete the member survey on the back and return it with your monthly payment slip in the envelope provided. We'd like them back by the end of the month.

We will publish the results of the survey in the Rural Montana newsletter when they become available.

Thank you.

Jim Maunder
Manager of Member Services

RAVALLI ELECTRIC CO-OP SOLAR SURVEY COMMENTS

- I am for sustainable energy but if 96% of our energy is coming from mainly hydroelectric sources this (solar wind) is probably a nonstarter although major parts of Montana are so windy it would seem to be a practical solution along with hydroelectric.
- Please, please read this book, "The Moral Case for Fossil Fuels" by Epstein. Solar is inefficient, expensive and environmentally unfriendly! Your mission should be to bring us the most efficient energy at the best price. Many cannot afford the frivolous luxury of alternative energy which is costly and inefficient. Please send me a survey when you want to offer nuclear power (Thorium preferred). I'll be on board!!! We live in Montana! Stop the insanity!!
- Our energy in Montana is hydro and renewable – I'll oppose any expenditure to placate the "progressive" agenda in any way. Disposable income doesn't exist in this home – these proposals are insane!
- Without subsidies, both wind and solar power generation would be a losing option. We will never see our present sources of electric generation replaced by wind or solar generation. Nuclear power generation should be increased and encouraged by business and government.
- What's not renewable about Hydro Electric?
- Hydroelectric is by far our best source of electrical generation. It should not only be used to its full capacity, it should be expanded upon. I am not interested in seeing a huge, ugly, inefficient solar farm trashing up the Bitterroot Valley and I certainly do not want to help finance it.
- REC should consider a balanced approach when it's efficient for the service area and appropriate for the membership. "If it ain't broke, don't fix it!"
- Photovoltaic systems are a waste of money. Hydro generation is the best.
- Hydroelectric sources are best for us and the environment.
- Solar power at this time makes no economic sense in the Bitterroot Valley.
- I have a relative in Arizona who installed panels at his place of business. He states the minimal savings on his bill will not even come close to justifying and/or paying for the outrageous cost of the panels over the lifetime of the panels. Solar energy is wasted \$.
- Hydroelectric power is the smartest renewable energy source. I would rather see money spent on strengthening our electrical grid to protect us from EMPs from solar flares or terrorist attacks. Thanks for your good stewardship.
- I believe we should develop more dams and Hydro!!!
- We are already burdened with paying for wind energy – which subsidizes and benefits the big oil companies who own a major share of wind projects. We do not need to add solar energy to this community burden. Let those who want solar power pay for it themselves!
- Hydro and Coal is a balance. Anyone promoting solar or wind wants us to be without power. Europe has deserted wind and solar – Hawaii has deserted a high wind farm. One member of our family took the tax credits and put in solar panels a couple years ago, is now saying, "It is NOT what it was cracked up to be."
- Keep your eye on the ball – do not wade into the idiocy of walking away (at all) from proven sources of energy.

- We already use a renewable source of electricity. You only mention cost of solar panels. What about batteries and inverters (?) extra unseen costs to adopt to homes.
- We now have 96% of power from renewable sources (good thing) – my bill is about \$.08 - .10/kWh now. Solar panels will produce 6900 kWh over 25 yr. life at cost of \$1100/panel – which is \$.16/kWh – twice what I am paying now – doesn't make financial sense.
- Let me restate: RCEC should continue doing what you are doing and feel no pressure to reinvent the wheel. We appreciate your conservative stands on issues.
- Hydroelectric seems much better than solar. Enhance that. H is clean, cheap, renewable and not as resource requiring as wind or solar. With our river, we should be able to get all of our energy out of that!!! Solar seems to require a lot of maintenance and it is fickle!
- You already have hydro...
- Stay off the bandwagon of "renewable" as defined by current administration. They are inept in every respect. Use common sense rather than community activism.
- I really like clean, hydroelectric. I do not like the idea of using ground space for solar, but would support roof-top units.